BEFORE THE
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Petition for Waiver of Certain Part 67 Requirements for Real-Time Text	)	GN Docket No. 15-178
	)	

PETITION FOR WAIVER

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I. INTRODUCTION & SUMMARY

Autonomous vehicles, or AVs, hold great promise to safely connect people, dramatically improve highway safety, and increase mobility for those who need it most. GM[1] is an industry leader in the charge to deploy self-driving technology. State-of-the-art software and hardware paired with over 100 years of automotive engineering make it uniquely positioned to create the world's first scalable AV fleet. As a first step in this transformation of mobility, GM is developing an AV ride-hailing service that will bring the revolutionary benefits of AVs to public roadways in the near future.

GM is also a leader in safety and accessibility, and these considerations are at the forefront as GM leads innovation in the emerging AV space. With respect to its upcoming AV ride-hailing service, GM has taken a holistic approach to accessibility that evaluates all functions of the vehicle, including communications. When – after pilot testing – the AV ride-hailing service becomes commercially available to the general public, it will enable a customer to open a voice channel to communicate in real-time about the riding experience with customer service. This purpose-built Customer Support Function allows the customer to communicate *only* with

[1] For purposes of this Petition, GM is defined as General Motors Holdings LLC and all its affiliates and subsidiaries, which includes GM Cruise Holdings LLC and all its subsidiaries.

customer service. The platform that enables these communications meets the FCC's definition of non-interconnected Voice over Internet Protocol ("VoIP") as an Advanced Communications Service ("ACS") which GM will make accessible via a chat application (the "Chat App") that enables Real Time Text ("RTT"). As explained in detail below, the FCC should grant GM's waiver in light of the minimal communications enabled by the Customer Support Function and the overarching accessibility benefits of GM's AV ride-hailing service.

The Chat App offers a rich experience functionally equivalent to voice communications using the Customer Support Function. Everything that can be done using voice via the Customer Support Function can be done using text via the Chat App. However, because of the limited communications enabled by the Customer Support Function – which may be used *only* to contact customer service – the Chat App does not satisfy all the RTT minimum operating requirements enumerated in Section 67.2 of the Commission's rules. Accordingly, GM seeks a waiver of the following minimum operating requirements: (i) RTT-RTT interoperability; (ii) RTT-TTY interoperability; (iii) transmission and receipt of RTT communications from Public Safety Answering Points ("PSAP"); and (iv) simultaneous voice and text communications. GM respectfully submits that a waiver is warranted because the Chat App provides customers with a rich and functionally equivalent customer experience. The Chat App features near instantaneous cross-talking and a conversational exchange the same as in a voice conversation. Moreover, grant of a waiver will facilitate roll-out of GM's AV ride-hailing service along with the associated accessibility benefits.

II. GM'S AV RIDE-HAILING SERVICE HAS THE POTENTIAL TO INCREASE ROADWAY SAFETY AND EXPAND MOBILITY IN THE PUBLIC INTEREST.

A. Autonomous Vehicles Will Revolutionize the Mobility Experience.

GM aims to build the world's best autonomous vehicles to safely connect people to the places, things, and experiences they care about. AVs have the potential to transform society by improving roadway safety, mitigating the risk of certain accidents and helping save lives. Moreover, their deployment will expand mobility to vulnerable populations limited by current driving technology, including the elderly and individuals with disabilities.

AVs have the potential to improve roadway safety. In 2016,[2] more than 37,000 Americans died on U.S. roads, and the National Highway Traffic Safety Administration ("NHTSA") estimates that 94% of automobile crashes in the U.S. were caused by human error.[3] According to the Department of Transportation ("DOT"), "the world is facing an unprecedented emergence of automation technologies. . . [W]here 9 out of 10 serious roadway crashes occur due to human behavior, automated vehicle technologies possess the potential to save thousands of lives, as well as reduce congestion, enhance mobility, and improve productivity."[4] The DOT

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[2] Please note that 2016 is the most recent year for which data is available.

[3] *See* U.S. Department of Transportation, National Highway Traffic Safety Administration ("NHTSA"), *Fatal Accident Reporting System (FARS)*, https://www.nhtsa.gov/research-data/fatality-analysis-reporting-system-fars (last visited Dec. 10, 2018); *See also* NHTSA, *Traffic Safety Facts: Critical Reasons for Crashes Investigated in the National Motor Vehicle Crash Causation Survey* (Feb. 2015), https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/812115.

[4] NHTSA, *Automated Driving Systems 2.0: A Vision for Safety*, at ii (Sept. 2017), https://www.nhtsa.gov/sites/nhtsa.dot.gov/files/documents/13069a-ads2.0_090617_v9a_tag.pdf.

has also declared that the potential for AVs to "reduce deaths and injuries on the Nation's roadways cannot be overstated."[5]

AVs also present unprecedented opportunities for the disability community by introducing a new mobility option. GM agrees with the Ruderman Family Foundation that "[m]itigating transportation-related obstacles for individuals with disabilities would enable new employment opportunities for approximately 2 million citizens and save $19 billion annually in healthcare expenditures from missed medical appointments."[6] In context of the anticipated broader impacts of AVs, this amounts to approximately "$1.3 trillion in savings from productivity gains, fuel costs, and accident prevention, among other sources."[7]

GM is developing an AV ride-hailing service that will help bring these benefits to public roadways in the near future. GM plans to make AVs available to the public in specific geographical areas through ride-hailing fleets, which will allow customers to order AVs on-demand using a mobile application. GM is already testing AVs on public roadways in San Francisco. AV ride-hailing is likely to initially launch through formal pilot programs, and later, larger but curated programs. The learnings from these programs will help facilitate GM's commercial ride hailing service that will be offered to the public at large.

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5 NHTSA, *Automated Vehicles 3.0: Preparing for the Future of Transportation*, at 1 (Oct. 2017), https://www.transportation.gov/sites/dot.gov/files/docs/policy-initiatives/automated-vehicles/320711/preparing-future-transportation-automated-vehicle-30.pdf.

6 *Ruderman White Paper, Self-Driving Cars: The Impact on People with Disabilities,* Ruderman Family Found. & Securing Am.'s Future Energy, at 4 (Jan. 2017), http://rudermanfoundation.org/wp-content/uploads/2017/08/Self-Driving-Cars-The-Impact-on-People-with-Disabilities_FINAL.pdf.

7 *Id.*

B. The Customer Support Function of GM's AV Ride-Hailing Service Will Be Made Accessible Via Real Time Text.

GM is committed to accessibility, and accessibility considerations are at the forefront as GM develops its AV program. Inherent in the AV ride-hailing service is the ability to communicate in real-time about the experience with customer service. As explained in more detail below, the platform that enables these communications meets the FCC's definition of non-interconnected VoIP, an ACS that GM will make accessible to individuals with hearing disabilities by providing RTT.

GM's Chat App emanates from its culture of inclusion and accessibility for the disability community at large. GM recently published a Diversity and Inclusion Report highlighting its commitment to accessibility,[8] which includes: (a) a mobility service dedicated to making travel and vehicle adaptation easier for people with special needs;[9] (b) accessible communication solutions (including TTY) with GM's OnStar service; and (c) GM Able, which helps GM consider accessibility needs for its products. The GM Able working group participates in workshops to provide GM design engineers perspective on disabled individuals' needs. For instance, GM's Advanced Vehicle Design team recently conducted an in-depth analysis of the everyday experience of a person living with blindness. The exercise included mobility analysis, what transportation they currently use and what solutions could potentially improve their quality of life. The feedback received will help GM continue its focus on accessibility in the context of its AV designs. GM's subsidiary GM Cruise Holdings LLC has also engaged several accessibility groups and conducted focus group studies.

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[8] *See* General Motors, Diversity & Inclusion Report (2018), https://bit.ly/2zW8zER.

[9] *See* General Motors, *General Motors Mobility*, https://www.gmfleet.com/overview/mobility-vehicles.html (last visited Dec. 10, 2018).

In keeping with these corporate practices, GM has conducted a holistic accessibility review of its AV ride-hailing service, including the communications capability. GM believes AVs will change the ways consumers interact with vehicles. Although consumers will not be driving, they will need to communicate information regarding their experience and vehicle functionality. For example, if a consumer were to become ill, or have a concern, they will need to communicate in real-time with customer service to address their needs. In cases of a 911 emergency, consumers will also need to work with a PSAP. GM's AV ride-hailing service will provide these capabilities through its Customer Support Function, a user-friendly feature that enables a customer to initiate a voice call to customer service. This purpose-built feature enables customer communications *only* with customer service. If a request requires a 911 call, the passenger will first contact customer service, which, in turn, will contact the appropriate PSAP.

The platform on which GM provides the Customer Support Function meets the FCC's definition of non-interconnected VoIP. Pursuant to the Communications Act, non-interconnected VoIP service enables real-time voice communications that originate from or terminate to the user's location using Internet Protocol ("IP") (or any successor protocol), requires IP-compatible customer premises equipment, and does not include any service that is an interconnected VoIP service.[10] Here, the Customer Support Function voice channel satisfies this definition because it uses an IP-platform to enable consumers to communicate *only* with customer service (*i.e.*, the service does not include full Public Switched Telephone Network interconnection). It is, therefore, a non-interconnected VoIP service.

Under the Twenty-First Century Communications and Video Accessibility Act and the FCC's implementing rules, non-interconnected VoIP is ACS for which accessibility is

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10 *See* 47 U.S.C. § 153(36).

required.[11] For a voice service like the Customer Support Function, this means making the service accessible to individuals with hearing or speech disabilities.[12] Historically, TTY support provided accessibility for these individuals. However, because of the incompatibility of TTY with IP networks the Commission initiated a transition to a new accessibility solution: RTT. RTT transmits text instantly, allowing each text character to appear on the receiving device at roughly the same time it is typed on the sending device.[13] Designed to operate on IP-based networks, RTT has been described as "superior to TTY in every way— transmission speed, latency, reliability, features, privacy, conversation form, and ease of use."[14] Accordingly, the ACS rules permit VoIP service providers and equipment manufacturers to support RTT instead of TTY.[15]

The FCC defines RTT as "text communications that are transmitted over Internet Protocol (IP) networks immediately as they are created, e.g., on a character-by-character basis."[16] Specifically, a service or device "supports RTT" if it "enable[s] users to initiate, send, transmit, receive, and display RTT communications" and meets certain Part 67 functionalities.[17] Section 67.2 of the Commission's rules lists the minimum functionalities of RTT:

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11 *See* 47 C.F.R. §§ 14.10(c), 14.21(b).

12 *See* 47 C.F.R. § 14.21(b).

13 *Emergency Access Advisory Committee (EAAC) Report on TTY Transition*, at 6 (Mar. 11, 2013), https://docs.fcc.gov/public/attachments/DOC-319386A1.pdf.

14 Petition of AT&T Services, Inc. for Waiver, PS Docket Nos. 11-153, 10-255, WC Docket No. 04-36, CG Docket Nos. 03-123, 10-213, at 3 (filed June 12, 2015).

15 *See* 47 C.F.R. §§ 14.21(b)(3), (d)(5).

16 47 C.F.R. § 67.1(g).

17 *Transition from TTY to Real-Time Text Technology*; *Petition for Rulemaking to Update the Commission's Rules for Access to Support the Transition from TTY to Real-Time Text Technology, and Petition for Waiver of Rules Requiring Support of TTY Technology*, Report and Order and Further Notice of Proposed Rulemaking, 31 FCC Rcd. 13568, 13578, ¶ 15 (2016).

- RTT-RTT interoperability;
- RTT-TTY interoperability;
- The ability to initiate and receive RTT from the same telephone numbers for which voice calls may be initiated and received;
- The ability to transmit and receive RTT communications from PSAPs; and
- The ability to send receive voice and text simultaneously in both directions using a single device. [18]

To make the Customer Support Function accessible under the Commission's rules, GM has developed a Chat App to provide RTT. The Chat App will allow passengers to do with text everything they can do with the voice channel: contact customer service to assist with inquiries or facilitate help in an emergency. In case of a 911 emergency, a passenger would use the Chat App to contact customer service, which, in turn, would contact the appropriate PSAP.[19] As with the voice-enabled Customer Support Function, a passenger using the Chat App would not have the ability to call anywhere else other than customer service. Moreover, the Chat App is a substitute for voice communications. When the Chat App is used, a customer is not able to use the voice-enabled Customer Support Function at the same time.

III. THE COMMISSION SHOULD WAIVE RTT MINIMUM FUNCTIONALITIES INAPPLICABLE TO THE CHAT APP BECAUSE OF THE LIMITED COMMUNICATIONS AVAILABLE USING THE CUSTOMER SUPPORT FUNCTION.

The Chat App provides hearing- and speech-disabled customers an experience functionally equivalent to the voice-enabled Customer Support Function. Everything a customer

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[18] *See* 47 C.F.R. § 67.2.

[19] Exhibit 1 provides a visual representation of an example message flow enabled via the Chat App.

may do with voice via the Customer Support Function may be done with text via the Chat App. However, because of the limited communications made possible via the Customer Support Function – which may be used *only* to contact GM customer service – the Chat App does not satisfy some of the RTT minimum functionalities delineated in the Commission's rules. Specifically, the Chat App does not provide: (i) RTT-RTT interoperability; (ii) RTT-TTY interoperability; (iii) transmission and receipt of RTT communications from PSAPs; or (iv) simultaneous voice and text.

The Chat App offers a seamless communication experience for deaf or hard of hearing individuals precisely tailored for GM's planned ride-hailing experience. The Chat App will allow customers to view messages sent and received during the conversation on a letter-for-letter basis, roughly as quickly as these messages are typed, thereby facilitating a conversational exchange. Thus, given its functionality and, in light of AV ride-hailing's broad accessibility potential, the minimum functionalities outlined above should be waived.

A Commission rule may be waived for "good cause shown."[20] In particular, a waiver is appropriate "where particular facts make strict compliance inconsistent with the public interest."[21] In addition, the Commission may "take into account considerations of hardship, equity, or more effective implementation of overall policy" on an individual basis.[22] Such a waiver is appropriate "if special circumstances warrant a deviation from the general rule and such deviation will serve the public interest."[23]

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20 *See* 47 CFR § 1.3.

21 *Northeast Cellular Tel. Co. v. FCC*, 897 F.2d 1164, 1166 (D.C. Cir. 1990).

22 *WAIT Radio v. FCC*, 418 F.2d 1153, 1159 (D.C. Cir. 1969).

23 *Northeast Cellular Tel. Co.*, 897 F.2d at 1166.

Here, waiver serves the public interest and would allow GM to deploy a functionally equivalent Chat App while advancing mobility for individuals with disabilities through the deployment of a revolutionary AV ride-hailing service. Waiver of the minimum operating requirements specified below is justified given the way that the Customer Support Function works. First, RTT-RTT interoperability and RTT-TTY interoperability are unnecessary because of the limited use case for the Customer Support Function. Simply put, a GM AV ride-hail customer using the Chat App communicates only with customer service. That communication would always be in a compatible RTT format and will never be made using TTY. Accordingly, the Commission should waive these interoperability requirements.

Second, neither the Customer Support Function nor the Chat App allow a customer to contact a PSAP directly. Whether using voice or text, a customer experiencing a 911 emergency would contact customer service, which, in turn, would contact the appropriate PSAP. Given the functional equivalency in approach, and the inability of any customer to contact a PSAP directly, this minimum functionality (*i.e.*, RTT communication capability to PSAP) should be waived.

Third, while the Chat App does not support simultaneous voice communications, it provides a functionally equivalent conversational experience. Unlike text messaging, the Chat App shows text on a character-by-character basis as it is typed. The recipient need not wait until a communication is completed and sent. Likewise, participants to a Chat App discussion can speak at the same time, allowing for cross-talk and talking over just as in voice conversation. Accordingly, the FCC should waive the simultaneous voice functionality requirement.

The Chat App provides a rich and functionally equivalent RTT experience. Waiver of the minimum operating requirements listed above will in no way diminish a customer's service experience or ability to communicate. Moreover, waiver of the minimum operating requirements

will advance deployment of GM's AV ride-hailing service and associated myriad public interest benefits. AVs have the potential to dramatically improve roadway safety by saving lives and preventing accidents. Moreover, their deployment will increase mobility for all Americans, including individuals with disabilities. Accordingly, grant of the requested waiver would serve the public interest.

IV. CONCLUSION

Autonomous vehicles promise great improvements to roadway safety and mobility for all Americans. GM is a leader in this technology and takes accessibility seriously. The Chat App makes the Customer Support Function of GM's AV ride-hailing service accessible by providing a rich and functionally equivalent RTT experience. While the Chat App does not satisfy all the FCC's RTT minimum functionality requirements, the FCC should grant GM's waiver in light of the minimal communications enabled by the Customer Support Function and the overarching accessibility benefits of GM's AV ride-hailing service.

Respectfully submitted,

By: */s/*

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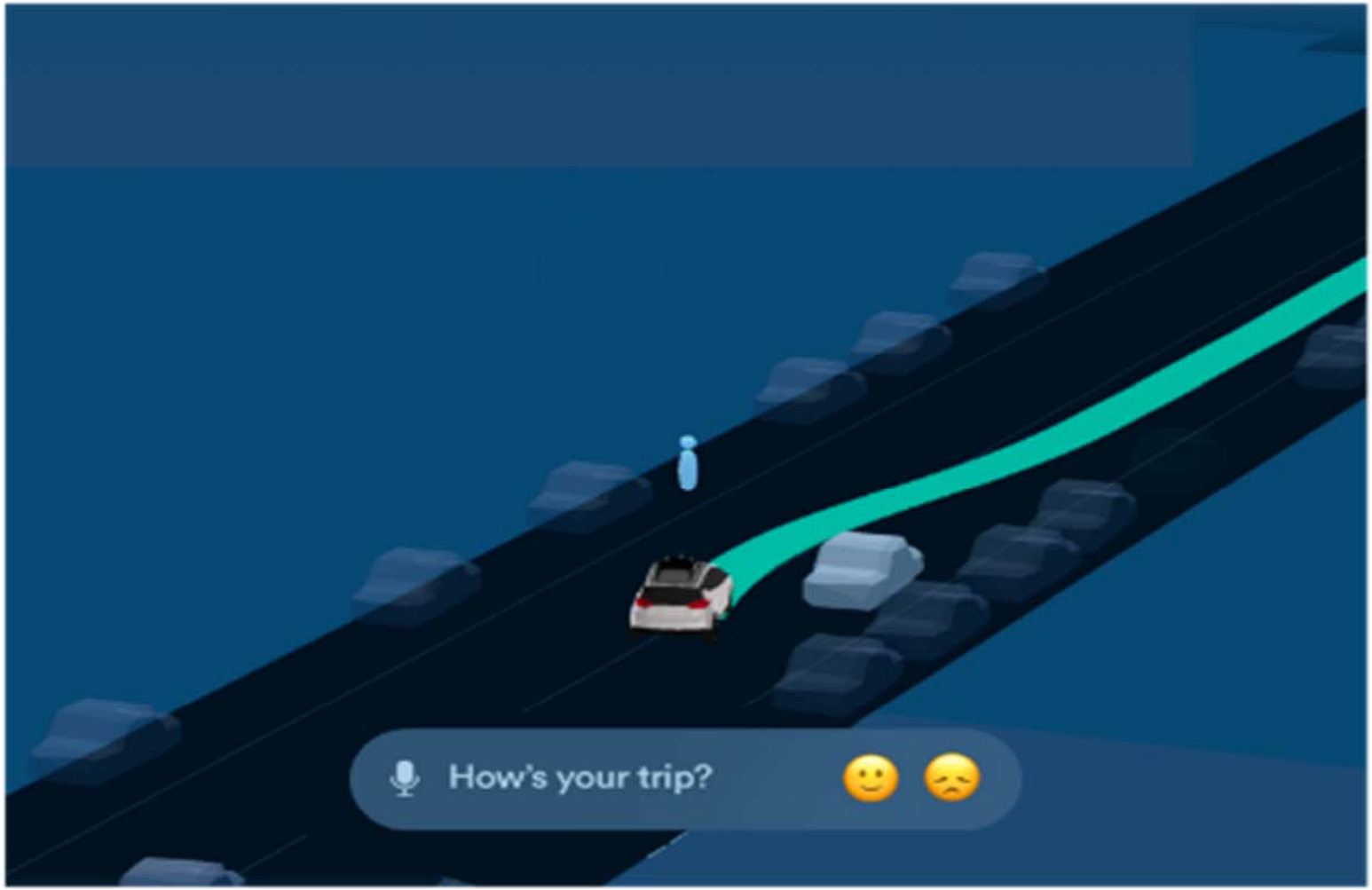
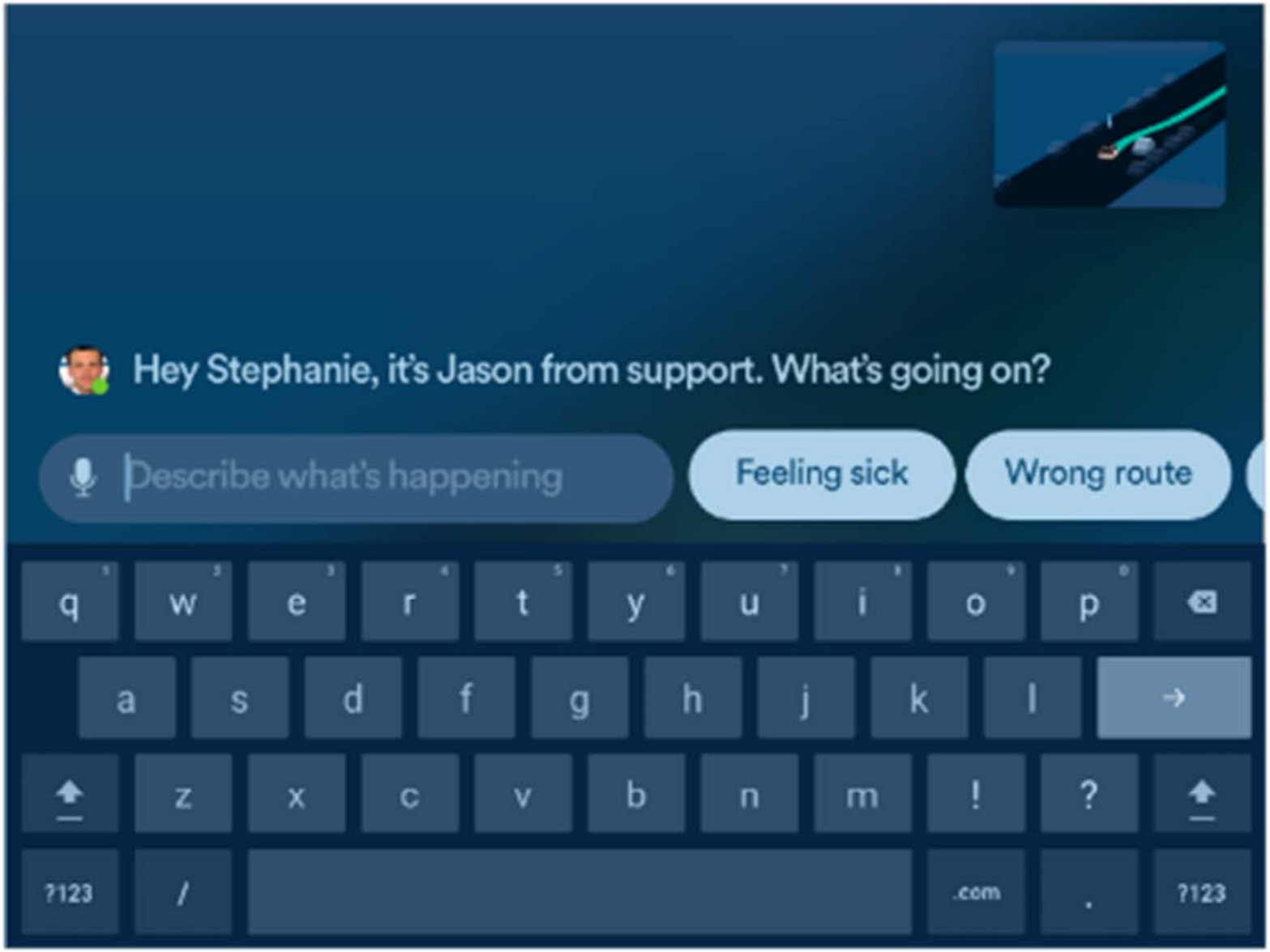
EXHIBIT 1

User requests a session



User is connected to a support chat



User types & responds as an Agent observes